Fermilab
Beams Division
NuMI Project

July 1, 2003

To: NuMI L3 Managers et. al.

From: Bob Ducar

Re: Summary of Noncovered Work Determinations

The following briefly describes the selected installation activities for which Davis-Bacon Act exemption was granted by the Department of Energy on June 6, 2003. On-going and allowed work activities on the part of Fermilab personnel related to supervision of covered Davis-Bacon work, to verification of operability, and to commissioning activities are not specifically listed. Estimates of hours of work required have been provided by WBS managers and are shown in parentheses. References to justifications are also included with each activity but are not detailed here.

WBS 1.1.1 Primary Beam

Activities Accepted for Designation as Noncovered Davis-Bacon:

Load testing of installed magnet stands (1C, 128 Hours)
Driving of magnet moving vehicle in the Main Injector enclosure (1B, 160 Hours)
Mechanical installation of 3 extraction kicker magnets (G3, 1A, 128 Hours)
Mechanical installation of flourinert cooling system for extraction kicker magnets (G3, 1A, 1D, 72 Hours)
Final installation and connection of instrumentation devices including BPMs, multiwires, beam toroids, and regular and total loss monitors. (G2, 480 Hours)

WBS 1.1.2 Neutrino Beam Devices

Activities Accepted for Designation as Noncovered Davis-Bacon:

Install Target/Baffle module in beamline chase (G2, G3, G4, 160 Hours)
Install Horn 1 module assembly in beamline chase (G2, G3, G4, 160 Hours)
Install Horn 2 module assembly in beamline chase (G2, G3, G4, 160 Hours)
Install cross hair detector system in beamline chase (G2, G3, G4, 152 Hours)
Installation and testing of seals between concrete covers of beamline chase (G2, G3, G4, 160 Hours)
Development and practice of radioactive component handling (G3, 2A, 910 Hours)

WBS 1.1.3 Power Supplies

Activities Accepted for Designation as Noncovered Davis-Bacon:

- Final construction, modification and assembly of thirty (30) instances of power supplies in service buildings including those for the kicker, dipole and quadrupole magnets (3A, 720 Hours)
- Final connection and certification of forty-eight (48) instances of cabling between power supplies and loads including: extraction kicker, dipole and quadrupole magnets, and horn power supply connections (G2, G3, 288 Hours)
- In-place testing of thirty (30) instances of power supplies with dummy loads (3B, 720 Hours)

WBS 1.1.4 Decay Region and Hadron Absorber

Activities Accepted for Designation as Noncovered Davis-Bacon:

- Installation of upstream and downstream decay pipe end caps (G4, 40 Hours)
- Sealing Hadron Absorber and its enclosure so as to control release of radioactivated air (G4, 96 Hours)
- Final installation of "hand-stacked" radiation shielding around associated piping and cabling (G4, 40 Hours)
- Installation of collection tank and drain piping for Hadron Absorber RAW secondary containment (G4, 40 Hours)

WBS 1.1.5 Neutrino Beam Monitoring

Activities Accepted for Designation as Noncovered Davis-Bacon:

- All activities associated with installation and connection of the hadron and muon monitor systems (G4, G5, 5A, 360 Hours)

WBS 1.1.6 Survey, Alignment & Geodesy

Activities Accepted for Designation as Noncovered Davis-Bacon:

- All services performed by the Fermilab Survey and Alignment Group (6A, 6, 412 Hours including 1,800 Hours for Fermilab construction QA and 800 Hours for Soudan)

WBS 1.1.7 Beamline Utilities

Activities Accepted for Designation as Noncovered Davis-Bacon:

- Hydrotesting of Primary Beam LCW and RAW Systems (7A, G4, 24 Hours)
- Final installation and connection of LCW and RAW system instrumentation (G2, G4, 32 Hours)
- Calibration and set-up of water pump motor controllers (G2, 16 Hours)
- Connection of LCW hoses between headers and magnets (G2, 48 Hours)
- Mechanical connection of pump skids, beam target module, horn modules, and Hadron Absorber modules to the RAW piping installed under SB&O subcontract (G3,G4, 96 Hours)
- Installation and pre-commissioning of LCW and RAW control systems primarily consisting of Programmable Logic Controllers (G1, G2, 60 Hours)
- Install and connect vacuum equipment in enclosure and equipment racks (G1, G2, 40 Hours)
- Leak checking and bake-out activities (7B, 7C, 100 Hours)
- Installation of gas connections for Total Loss Monitor cables (G4, 60 Hours)
- Installation of manual gas system for Hadron and Muon Monitors, ref. WBS 1.1.5 (G5, 60 Hours)

WBS 1.1.8 Controls, Interlocks and Cable Installation

Controls Activities Accepted for Designation as Noncovered Davis-Bacon:

- Installation of controls equipment in equipment racks (G1, 80 Hours)
- Final placement of controls modules into various bus systems such as VME, NIM and CAMAC and final connection of controls cabling including fiber optic cables (G1, 80 Hours)
- Connection of FIRUS and CATV equipment (G2, 8A, 50 Hours)
- Development and placement of CATV systems to facilitate radioactive component handling in the Target Hall (G3, 2A, 8A, 64 Hours)

Interlock Activities Accepted for Designation as Noncovered Davis-Bacon:

- Terminate and connect safety system cables. Installation and alignment of selected components of the safety interlock system including selected gates and door switches. (G2, 8B, 200 Hours)

Cable Termination Activities Accepted for Designation as Noncovered Davis-Bacon:

- Termination of extraction kicker RG220 high voltage coaxial cables, Pirani vacuum gauge cables, and mass terminated cables (G3, 1A, 8C, 25 Hours)
- Termination Andrew Heliax cables for 24 BPMs, 2 beam intensity toroids, and 4 total loss monitors (G4, 8D, 80 Hours)

WBS 2.5 Near Detector Installation

Activities Accepted for Designation as Noncovered Davis-Bacon:

All activities associated with the installation and setup of the MINOS near detector experimental apparatus including detector and its magnet coil, LCW, magnet coil power supply and its cooling system (G5, 12,360 Hours)

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